GUIDE – “Gentle User Interfaces for Elderly People”

Christoph Jung, Fraunhofer IGD

christoph.jung@igd.fraunhofer.de
GUIDE project in a nutshell

GUIDE develops a **software framework and toolbox** for integration of adaptive accessibility features on **hybrid TV platforms**.

GUIDE performs user centered design, focusing on elderly users with **ageing-related impairments**, targeting new **user models** and **simulation tools**.

GUIDE integrates various **user interface technologies** and performs automatic **multimodal adaptation** to the user.
GUIDE project in a nutshell

- **Partners**
  - ingema
  - vsionix
  - Centro de Computação Gráfica
  - UNIVERSIDADE DE LISBOA
  - UNIVERSITY OF CAMBRIDGE
  - technicolor

- **Fraunhofer IGD**
  (Project Coordinator)

- **Status (project month 10)**
  - User tests & user modeling
  - Application & user interface prototypes
  - Requirements engineering and framework/toolbox design

- **27%**
GUIDE approach

- Conventional user-centred design approach
GUIDE approach
Targeted Outcomes

- GUIDE reference applications
  - Requirements for GUIDE Framework and Toolbox
  - Prototypes for user trials
  - Evaluation
  - Cross-integration with various user interface technologies

TV & EPG Navigation

Tele-Learning

Video Conferencing
Targeted Outcomes

- Integrated user interface technologies
  - Framework / Toolbox requirements
  - Prototypes for user tests
  - Evaluate Framework/Toolbox
  - Re-use in all GUIDE applications

- Vision-based user context sensing & gesture control

- HTML Rendering
- Multi-Touch on Tablet PCs

- (Gyroscopic) remote controls, Wii
- Speech recognition/synthesis, Mic Arrays
- Avatars
Targeted Outcomes

- **User tests and evaluation**
  - Evaluation of UI designs and adaptation concepts
  - Requirements gathering
  - User Initialisation software: Collecting qualitative and quantitative data for user modelling and “register” user on first system usage
  - Testing concepts: Questionnaires, focus groups, application prototypes, UI mock-ups, user tests, videos, testing in labs and in users’ homes (planned)

User tests (here: User Initialisation Application)  Focus groups (illustr.)  User interface mock-ups
Targeted Outcomes

- **User modelling**
  - Identify typical impairment configurations
  - Considering static (profile selection) & dynamic (runtime) adaptation
  - User simulation based on model data: Perception, cognition & motor behaviour model

GUIDE user simulator architecture
Targeted Outcomes

GUIDE Toolbox

- GUIDE-enabled user interface technology components
- User simulation software
- GUIDE “Handbook”: Repository of domain knowledge for inclusive application design → guidelines, documentation,…

GUIDE User Simulator

Normal view

Simulated view
(Wet Macular Degeneration)

Simulated viewing trajectories
Targeted Outcomes

- **GUIDE Framework**
  - Open source
  - GUIDE core components, protocols and APIs
  - Interoperable UI technologies
  - Multimodal adaptation in application user interface
  - Based on UNIVERSAAL framework technology
Targeted Outcomes

- **Multimodal adaptation**
  - Adaptation of UIs to individual impairment configurations
  - Multimodal input fusion / output fission of UI component data
  - Context reasoning
  - User initialisation application
Targeted Outcomes

- **Standardisation activities**
  - GUIDE Framework:
    - Compliance to existing and emerging standards (HbbTV, HTML 5, etc.)
    - Towards new standards where necessary
  - User modeling:
    - Standardisation of user models
    - Standardisation of user data and corresponding meta-data formats
  - Cooperation with other European projects in the “VUMS cluster”
Contact

- Contact us:
  - Volker Hahn (volker.hahn@igd.fraunhofer.de)
  - Fraunhofer IGD, Darmstadt, Germany

- Go to our website: www.guide-project.eu

- Follow us in social networks:

Upcoming events: